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In the United States Patent and Trademark Office
Board of Patent Appeals and Interferences

In re Application of:

Ronald S. Cok

Light Emitting Flat-Panel Display

Serial No. 09/919,442

Filed 31 July 2001

Group Art Unit: 2814

Examiner: Shrinivas H. Rao

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Valerie J. Richardson
Valerie J. Richardson

March 26, 2004
Date

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPEAL BRIEF TRANSMITTAL

Enclosed herewith in triplicate is Appellant's Appeal Brief for the above-identified application.

The Assistant Commissioner is hereby authorized to charge the Appeal Brief filing fee to Deposit Account 05-0225. A duplicate copy of this letter is enclosed.

Respectfully submitted,

Andrew J. Anderson

Attorney for Appellants
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Sir:

APPEAL BRIEF PURSUANT TO 37 C.F.R. 1.192

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the Examiner's Final Rejection of claims 1-11 which was contained in the Office Action mailed August 6, 2003.

A timely Notice of Appeal, with authorization to charge extension of time fee, was filed January 26, 2004.

Respectfully submitted,

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Real Party In Interest

The Eastman Kodak Company is the assignee and real party in interest.

Related Appeals And Interferences

No appeals or interferences are known which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

Status Of The Claims

Claims 1-11 are pending in the application.

Claims 1-10 stand rejected under 35 USC § 102.

Claim 11 stands rejected under 35 USC § 103.

Claims 1-11 are being appealed.

Appendix I provides a clean, double-spaced copy of the claims on appeal.

Status Of Amendments

An Amendment After Final was mailed August 21, 2003 (within two months of the Final Office Action dated August 6, 2003). An Advisory Action dated December 24, 2003 refused entry of the Amendment After Final.

A Response to the Advisory Action was mailed January 9, 2004, requesting a supplemental Advisory Action be mailed to reset the period for reply to correspond to the mailing date of the initial Advisory Action (i.e., December 24, 2003), in accordance with MPEP 706.07(f). No response has been received in reply to the Response to the Advisory Action, and a Notice of Appeal was filed January 26, 2004 (with authorization to charge the believed required one-month extension of time fee, and, as a precaution, any additional required extension of time fee).

Summary Of The Invention

A light emitting flat-panel display 12 includes a plurality of light emitting diodes 14; a sensor 24 for sensing the light output of at least one of the light emitting diodes to produce a light output signal; and a display controller 18 responsive to the light output signal for producing a signal 28 representing the remaining useful life of the display. The controller processes the light output signal and calculates an estimated lifetime for the display device (page 3, lines 7-9). This estimated lifetime may be made accessible to an external system or the controller may signal an external system when particular display device lifetime parameters are met (page 3, lines 9-11). In a preferred embodiment, the display is an organic light emitting diode display (page 4, lines 13-14).

Issues For Review By The Board

There are two issues presented for review by the Board of Patent Appeals and Interferences:

1. Are Claims 1-10 properly rejected under 35 USC 102(b) as being anticipated by Salam (US 6,081,073)?
2. Is Claim 11 properly rejected under 35 USC 103(a) as being unpatentable over Salam (US 6,081,073) as applied to claims 1-10 above and further in view of Mizoguchi et al. (US 6,028,327)?

Grouping Of Claims

Patentability of Claims 1, 3, 6, 7, 9 and 10 are not argued independently with respect to the rejection under 35 USC 102(b) as being anticipated by Salam, and such claims according will stand or fall together.

Patentability of Claims 2 and 4 is argued independently with respect to the rejection under 35 USC 102(b) as being anticipated by Salam, and such claims will stand or fall separately from that of claims 1, 3, 6, 7, 9 and 10.

Patentability of Claim 5 is argued independently with respect to the rejection under 35 USC 102(b) as being anticipated by Salam, and such claim will stand or fall separately from that of claims 1, 3, 6, 7, 9 and 10.

Patentability of Claim 8 is argued independently with respect to the rejection under 35 USC 102(b) as being anticipated by Salam, and such claim will stand or fall separately from that of claims 1, 3, 6, 7, 9 and 10.

Patentability of Claim 11 will stand or fall independently with respect to the rejection under 35 USC 103(a) as being unpatentable over Salam in view of Mizoguchi et al.

Arguments

The Anticipation Rejection

Claims 1-10 are rejected under 35 USC 102(b) as being anticipated by Salam (US 6,081,073).

With respect to claim 1, the examiner states that Salam describes a light emitting flat-panel display comprising the various claimed elements. With respect to the display controller responsive to the light output signal for producing a signal representing the remaining useful life of the display, the Examiner references col. 11 lines 30-55, col. 1 lines 19-21 and col. 1 lines 43-45 of Salam. The examiner, however, is mistaken.

Nowhere in Salam is there any teaching or disclosure of a controller for producing a signal representing the remaining useful life of the display. While Salam does acknowledge in the cited passages of col. 1 that LED lamps are subject to intensity degradation with prolonged use, Salam does not teach a controller that produces a signal representing the remaining useful life of a display. Rather, Salam teaches at the cited passage of col. 11 monitoring the output of the LEDs and adjusting their outputs to reduce differences between the outputs of different lamps caused by inequities in their degradations. Monitoring and adjusting outputs of individual lamps to provide matched colors is clearly distinct from producing a signal representing the remaining useful life of a display. Accordingly, Salam does not anticipate the claimed invention.

In response to Applicant's arguments that Salam does not teach a controller that produces a signal representing the remaining useful life of the display, the Examiner has in the first instance dismissed such argument as being not persuasive, essentially stating that such claimed feature is only an intended use

limitation which does not differentiate the claimed apparatus from the prior art apparatus satisfying the claimed structural limitations. Appellant disagrees, as the claim clearly requires “a display controller ... for producing a signal representing the remaining useful life of the display”. This is not an “intended use” limitation, but rather an explicit functional requirement of the display controller in the claimed display, and accordingly must be given weight as an element in the claim.

Secondarily, the Examiner argues that Salam in any event discloses the feature of a controller for producing a signal representing the remaining useful life of the display. In this regard, the Examiner points out that Salam discloses that his system can detect degradation in a lamp, and argues that one can determine the remaining useful life by comparing the degradation to the known useful life of an LED. What possibly may or may not be done beyond the specific teachings and disclosure of Salam, however, is clearly irrelevant to whether Salam anticipates the present claimed invention. Further, the Examiner has not pointed to specific teaching in the prior art which would direct the artisan to the present claimed invention. This is because there simply is no teaching or suggestion from the lamp monitoring and brightness adjustment system of Salam to provide a controller for producing a signal representing the remaining useful life of the display. It must be concluded therefore that the Examiner has merely reconstructed the prior art in light of Applicant’s teaching. It is believed therefore that the claimed invention is allowable over Salam, and reversal of this rejection is respectfully requested.

With respect to claims 2 and 4, while it is believed claim 1 adequately sets forth an explicit functional requirement of the display controller in the claimed display which distinguishes from Salam, rather than only an “intended use” limitation as argued by the Examiner, it is noted that claim 2 (and claim 4 dependent thereon) explicitly requires that the controller includes means for comparing the light output signal to a pre-determined criterion to determine the remaining useful life of the display. Should the rejection of claim 1 be affirmed, it is separately argued that the added means plus function limitation in claims 2 and 4 clearly distinguishes from Salam, as there is no teaching or disclosure thereof in Salam. The cited passages of Salam referenced by the Examiner (col. 3 lines 35-40, col. 4 lines 20-24, lines 38-40, and lines 47-51) again relate to monitoring lamp outputs to detect inequities in

degradation, and to compensate therefore to improve the perceived uniformity of a display, not to provide a signal representing the remaining useful life of the display.

With respect to claim 5, the Examiner argues that Salam also shows the feature of the light emitting diodes, the sensor and the controller being integrated on a common substrate. While initially referring to Figs. 1 and 2, the Examiner subsequently relies in the Advisory Action upon Fig. 5 for such claimed feature. A careful look at Fig. 5 of Salam shows that the photosensor 64 and the light emitters L are discrete elements soldered to the back of a printed circuit board 61 as parts of a tile 60. There is no suggestion that these elements are integrated on a common substrate. The term integrated when referring to circuits has a well-known meaning in the electrical arts, meaning the elements are formed on the substrate, not manufactured separately and attached to a circuit board. It is therefore believed that claim 5 is also separately patentable over Salam for this additional reason.

With respect to claim 8, the Examiner argues that the additional claimed feature (“wherein the controller includes means for generating an interrupt signal when the remaining useful life of the display is less than a pre-determined criterion for communication to a device external to the display”) is taught at col. 11 lines 53-55 and line 67 of Salam. A review of such passages fails to disclose such claimed feature, however. Rather, such passages are again directed towards controlling the output of individual lamps to reduce differences in their brightness, as opposed to providing a signal representing the remaining useful life of a display, and and interrupt signal when the remaining useful life is less than a predetermined criterion. It is therefore believed that claim 8 is also separately patentable over Salam for this additional reason.

The Obviousness Rejection

Claim 11 is rejected under 35 USC 103(a) as being unpatentable over Salam (US 6,081,073) as applied to claims 1-10, and further in view of Mizoguchi et al. (US 6,028,327). The Examiner states that while Salam does not specifically describe organic light emitting diodes, it would have been obvious to substitute Mizoguchi et al.’s organic light emitting diodes for Salam’s unspecified diodes in Salam’s device in order to provide a device wherein low alternating current voltage may be applied to the emitting layer.

While it is respectfully submitted that the substitution of the organic light emitting diodes of Mizoguchi et al for the lamps of Salam would not result in Appellants' invention as such combination would still fail to teach a controller responsive to the light output signal for producing a signal representing the remaining useful life of the display as discussed above with respect to the rejection of claim 1, it is further submitted that there is in any event no motivation to employ organic light emitting diodes specifically in the system of Salam as proposed by the Examiner. Note that Salam is specifically directed towards providing a system to monitor and correct for non-uniformities between lamps in a display matrix which are intended to emit light of the same color. While the problem addressed by Salam of mis-matched colors may be significant for displays comprising inorganic LED lamps (which are typically independently manufactured and then assembled in the display, e.g. by soldered to a circuit board as shown in Fig. 5 of Salam), such problem is not suggested by either Salam or Mizoguchi et al to exist for organic light emitting diodes of the same color in a display (which are typically manufactured by patterning the same source materials at the same time on the display substrate). Absent such indication of the problem addressed by Salam also being a problem for the organic light emitting diodes of Mizoguchi et al., there would be no motivation to employ such organic light emitting diodes specifically in the system of Salam (i.e., while the advantage of low alternating current voltages may be a general advantage of organic light emitting diodes over inorganic LEDs, such advantage would not motivate the use of such organic light emitting diodes specifically in the system of Salam, which is directed towards addressing a problem associated with inorganic LEDs). Reversal of this rejection is accordingly respectfully requested.


Summary

Appellant's claimed invention is clearly not anticipated by Salam, nor obvious in view of Salam or the combination of Salam and Mizoguchi et al., as the cited prior art fails to teach or suggest a display comprising a controller for providing a signal representing the remaining useful life of the display.

Conclusion

For the above reasons, Appellant respectfully requests that the Board of Patent Appeals and Interferences reverse the rejection by the Examiner and mandate the allowance of Claims 1-11.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Andrew J. Anderson", is written over a horizontal line.

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Appendix I - Claims on Appeal

1. A light emitting flat-panel display comprising:
a plurality of light emitting diodes;
a sensor for sensing the light output of at least one of the light emitting diodes to produce a light output signal; and
a display controller responsive to the light output signal for producing a signal representing the remaining useful life of the display.
2. The light emitting flat panel display claimed in claim 1, wherein the controller includes means for comparing the light output signal to a pre-determined criterion to determine the remaining useful life of the display.
3. The light emitting flat panel display claimed in claim 1, wherein the display is a color display having groups of differently colored light emitting diodes and further comprising a separate sensor for each group in the flat-panel display.
4. The light emitting flat panel display claimed in claim 2, wherein the display is a color display having groups of differently colored light emitting diodes and further comprising a separate sensor for each group in the flat-panel display and wherein there is a different pre-determined criterion for each group.
5. The light emitting flat panel display claimed in claim 1, wherein the light emitting diodes, the sensor, and the controller are integrated on a common substrate.

6. The light emitting flat panel display claimed in claim 1, wherein the light emitting diodes, the sensor, and the controller are contained within a common package.

7. The light emitting flat panel display claimed in claim 1, wherein the display further comprises an addressable memory connected to the controller and wherein the signal representing the remaining useful life of the display is stored in the memory and accessible external to the display.

8. The light emitting flat panel display claimed in claim 1, wherein the controller includes means for generating an interrupt signal when the remaining useful life of the display is less than a pre-determined criterion for communication to a device external to the display.

9. The light emitting flat panel display claimed in claim 1, wherein the signal representing the remaining useful life of the display has a range of values corresponding to the expected life-time of the display.

10. The light emitting flat panel display claimed in claim 1, wherein the signal representing the remaining useful life of the display is a binary value representing whether or not the display has reached the end of useful life.

11. The light emitting flat panel display claimed in claim 1, wherein the diodes are organic light emitting diodes.